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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,762	01/21/2004	Janet Bee Yin Chua	70040065-1	2866

7590 01/12/2005

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EXAMINER	
RICHARDS, N DREW	

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/761,762	CHUA ET AL.	
	Examiner	Art Unit	
	N. Drew Richards	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/21/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 13 recites the limitation "said light source" in line 2. There is insufficient antecedent basis for this limitation in the claim.

3. Claim 14 recites the limitation "said light source" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4-9, 11-16 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Bawendi et al. (U.S. Patent No. 6,501,091 B1).

Bawendi et al. disclose a device for emitting output light and a method for emitting output light in figures 1-3 and on columns 1-12. With regard to claim 1, Bawendi et al. disclose a device comprising:

a light source 10 that emits first light of a first peak wavelength in a 481-520 nm range (column 5 lines 55-57; the LED 10 is blue and thus it's peak wavelength is in a 481-520 nm range); and

a wavelength-shifting region 12 optically coupled to the light source 10 to receive the first light, the wavelength-shifting region including Group IIB element Selenide-based phosphor material 22 having a property to convert some of the first light to a second light of a second peak wavelength in a red wavelength range (column 5 line 57 through column 6 line 4, the second layer of quantum dots 22 absorbs some of the primary blue light and emits red secondary light; column 2 lines 53-54, the quantum dots comprise CdSe or ZnSe which are Group IIB element Selenide-based phosphor materials),

the first light and the second light being components of the output light (column 6 lines 1-4).

With regard to claim 2, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (column 2 lines 53-54).

With regard to claim 4, the Group IIB element Selenide-based phosphor material includes Cadmium Selenide (column 2 lines 53-54).

With regard to claim 5, the light source includes a light emitting diode (LED) 10 that can generate the first light of the first peak wavelength.

With regard to claim 6, the wavelength-shifting region is a part of a lamp coupled to the light source (the entire region 12 is considered a lamp as it outputs white light).

With regard to claim 7, the wavelength-shifting region is a lamp coupled to the light source (the entire region 12 is considered a lamp as it outputs white light).

With regard to claim 8, Bawendi et al. disclose:

a semiconductor die 10 that emits first light of a first peak wavelength in a 481-520 nm range (column 5 lines 55-57; the LED is disclosed as being AlGaInN type and thus is considered a semiconductor die; the LED 10 is blue and thus it's peak wavelength is in a 481-520 nm range); and

a phosphor-containing medium 12 positioned to receive the first light, the phosphor-containing medium including Group IIB element Selenide-based phosphor material 22 having a property to convert some of the first light to a second light of a second peak wavelength in a red wavelength range (column 5 line 57 through column 6 line 4, the second layer of quantum dots 22 absorbs some of the primary blue light and emits red secondary light; column 2 lines 53-54, the quantum dots comprise CdSe or ZnSe which are Group IIB element Selenide-based phosphor materials),

the first light and the second light being components of the output light (column 6 lines 1-4).

With regard to claim 9, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (column 2 lines 53-54).

With regard to claim 11, the Group IIB element Selenide-based phosphor material includes Cadmium Selenide (column 2 lines 53-54).

With regard to claim 12, the semiconductor die is a light emitting diode (LED) 10.

With regard to claim 13, the phosphor-containing medium is a part of a lamp coupled to the light source (the entire region 12 is considered a lamp as it outputs white light).

With regard to claim 14, the phosphor-containing medium is a lamp coupled to the light source (the entire region 12 is considered a lamp as it outputs white light).

With regard to claim 15, Bawendi et al. disclose a method for emitting output light comprising:

generating first light of a first peak wavelength in a 481-520 nm range (column 5 lines 55-57; the blue LED is used to provide the primary light; the LED 10 is blue and thus it's peak wavelength is in a 481-520 nm range);

receiving the first light, including converting some of the first light to second light of a second peak wavelength in a red wavelength range using Group IIB element Selenide-based phosphor material (column 5 line 57 through column 6 line 4, the second layer of quantum dots 22 absorbs some of the primary blue light and emits red secondary light; column 2 lines 53-54, the quantum dots comprise CdSe or ZnSe which are Group IIB element Selenide-based phosphor materials); and

emitting the first light and the second light as components of the output light (column 5 line 67 through column 6 line 4).

With regard to claim 16, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (column 2 lines 53-54).

With regard to claim 18, the Group IIB element Selenide-based phosphor material includes Cadmium Selenide (column 2 lines 53-54).

With regard to claim 19, the generating includes generating the first light of the first peak wavelength at a light emitting diode die 10.

With regard to claim 20, the light emitting diode die is configured to generate the first light such that the first peak wavelength is within a blue-green region of the visible light spectrum (the LED is disclosed to emit blue light which is within a "blue-green region" of the visible light spectrum).

6. Claims 1-3, 5-10, 12-17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsubara et al. (US 2003/0008431 A1).

Matsubara et al. disclose a device for emitting output light and a method for emitting output light in figures 1-11B and on pages 1-6. With regard to claim 1, Matsubara et al. disclose a device comprising:

a light source 2 that emits first light of a first peak wavelength in a 481-520 nm range (column 1 lines 59-67; the epitaxial light emission structure is disclosed as emitting light at a wavelength from 460-510 nm for blue or blue-green color and thus it's peak wavelength is in a 481-520 nm range); and

a wavelength-shifting region 1 optically coupled to the light source 2 to receive the first light, the wavelength-shifting region including Group IIB element Selenide-based phosphor material having a property to convert some of the first light to a second light of a second peak wavelength in a red wavelength range (column 2 lines 1-6, the ZnSe substrate absorbs the light emitted from the light source 2 and emits red light; the substrate is ZnSe which is a Group IIB element Selenide-based phosphor material),

the first light and the second light being components of the output light (column 2 lines 3-6).

With regard to claim 2, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (column 2 line 1).

With regard to claim 3, the Zinc Selenide is disclosed as being activated by at least one element selected from a group consisting of copper, chlorine, fluorine, bromine, and silver (column 1 lines 48-53).

With regard to claim 5, the light source includes a light emitting diode (LED) that can generate the first light of the first peak wavelength (column 1 lines 58- 67; the light emission structure is disclosed as being a high bright LED emitting light at a wavelength from 460-510 nm).

With regard to claim 6, the wavelength-shifting region is a part of a lamp coupled to the light source (the entire device of figure 1 is considered a lamp as it outputs white light).

With regard to claim 7, the wavelength-shifting region is a lamp coupled to the light source (the entire device of figure 1 is considered a lamp as it outputs white light).

With regard to claim 8, Matsubara et al. disclose a device comprising:

a semiconductor die 2 that emits first light of a first peak wavelength in a 481-520 nm range (column 1 lines 59-67; the epitaxial light emission structure is an LED disclosed as emitting light at a wavelength from 460-510 nm for blue or blue-green color and thus it's peak wavelength is in a 481-520 nm range); and

a phosphor-containing medium 1 positioned to receive the first light, the phosphor-containing medium 1 including Group IIB element Selenide-based phosphor

material having a property to convert some of the first light to a second light of a second peak wavelength in a red wavelength range (column 2 lines 1-6, the ZnSe substrate absorbs the light emitted from the light source 2 and emits red light; the substrate is ZnSe which is a Group IIB element Selenide-based phosphor material),

the first light and the second light being components of the output light (column 2 lines 3-6).

With regard to claim 9, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (column 2 line 1).

With regard to claim 10, the Zinc Selenide is disclosed as being activated by at least one element selected from a group consisting of copper, chlorine, fluorine, bromine, and silver (column 1 lines 48-53).

With regard to claim 12, the semiconductor die is a light emitting diode (LED) die (column 1 lines 58- 67; the semiconductor die is disclosed as being a high bright LED emitting light at a wavelength from 460-510 nm).

With regard to claim 13, the phosphor-containing medium is a part of a lamp coupled to the light source (the entire device of figure 1 is considered a lamp as it outputs white light).

With regard to claim 14, the phosphor-containing medium is a lamp coupled to the light source (the entire device of figure 1 is considered a lamp as it outputs white light).

With regard to claim 15, Matsubara et al. disclose a method for emitting output light comprising:

generating first light of a first peak wavelength in a 481-520 nm range (column 1 lines 59-67; the epitaxial light emission structure provides blue or blue-green light which is disclosed as being from 460-510 nm which is in a 481-520 range);

receiving the first light, including converting some of the first light to second light of a second peak wavelength in a red wavelength range using Group IIB element Selenide-based phosphor material (column 1 line 67 through column 2 line 6; the first light emitted toward the substrate is converted to red; the substrate is ZnSe which is a Group IIB element Selenide-based phosphor material); and

emitting the first light and the second light as components of the output light (column 2 lines 3-6).

With regard to claim 16, the Group IIB element Selenide-based phosphor material includes Zinc Selenide (column 2 line 1).

With regard to claim 17, the Zinc Selenide is disclosed as being activated by at least one element selected from a group consisting of copper, chlorine, fluorine, bromine, and silver (column 1 lines 48-53).

With regard to claim 19, the generating includes generating the first light of the first peak wavelength at a light emitting diode die.

With regard to claim 20, the light emitting diode die is configured to generate the first light such that the first peak wavelength is within a blue-green region of the visible light spectrum (the LED is disclosed to emit blue-green on column 1 line 64).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Miller et al. (US Patent No. 6803719 B1), Ohtani et al. (US Patent NO. 4539506), Odaki et al. (US 2001/0050371 A1), Yocom et al. (US 2003/0222268 A1), Stokes et al. (US 2004/0124429 A1), Jeon (US 2004/0169189 A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Drew Richards whose telephone number is (571) 272-1736. The examiner can normally be reached on Monday-Friday 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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